



CALIFORNIA STATE SCIENCE FAIR 2011 PROJECT SUMMARY

Name(s) Sean McGovern	Project Number 31894
Project Title Going Bananas	
Objectives/Goals My two objectives were to test whether sugar content was the best indicator of banana ripeness, and whether ethylene absorbers (EA) delayed the ripening of bananas. Abstract Methods/Materials The experiment was performed in two parts. Part 1. To determine the best tests for ripeness, skin color, weight, pulp to skin weight ratio (digital scales), skin thickness (digital calipers), firmness (my original "splat test"), sugar content (Brix refractometer), starch content (iodine solution and digital light microscope), and taste (volunteers) were measured on bananas of different ripeness. Then, bananas were tested using the best tests (weight, pulp to skin weight ratio, sugar content, skin thickness, and firmness) on 13 consecutive days. Part 2. The effect of EAs were studied. Unripe bananas were placed either in: the refrigerator, box A (alone), box B (with 3 apples), box C (with an EA), and box D (with 3 apples and an EA). The bananas were tested for ripeness using pulp to skin weight ratio, skin thickness, sugar content, and splat test on day 6. This was repeated 3 times. Results The pulp to skin weight ratio and firmness (splat test) were the best indicators of banana ripeness. Sugar content initially increased with ripeness, but reached a maximum concentration early on, and then reduced as the banana became over ripe. EAs slowed the ripening of bananas, as measured by the pulp firmness and pulp to skin weight ratio, in boxes B and D (compared to A and C respectively). However the refrigerator slowed the banana ripening the most. Conclusions/Discussion The project demonstrated that sugar content was not the best test of ripeness. The pulp firmness, as measured by the splat test, and pulp to skin weight ratio were the most reliable tests of banana ripeness. EAs slowed banana ripening a small amount, however refrigeration is better than EAs for delaying ripening. Therefore, once bought, this project suggests that half of a hand of bananas should be placed in the refrigerator, and half in the fruit bowl, so that bananas can be enjoyed for longer.	
Summary Statement My project was about finding the best test for measuring the ripeness of bananas, and seeing if ethylene absorbers delay banana ripening.	
Help Received My father helped me understand excel spread sheets and graphs.	